
AMENDMENTS TO THE CLAIMS

1. (currently amended) A [[M]]method for the plastic deformation of polymers, characterized in that a comprising treating polymers is treated with electromagnetic radiation having a wavelength in the range from 0.8 to 100 μm , and with simultaneously treating the polymers with action of pressure and shearing and thermal energy.
2. (currently amended) The [[M]]method according to [[C]]claim 1, characterized in that wherein the heat is supplied to the polymer or heat is removed from the polymer during the method.
3. (currently amended) The [[M]]method according to [[C]]claim 1 or 2, characterized in that wherein the electromagnetic radiation is laser radiation.
4. (currently amended) The [[M]]method according to any of [[C]]claim[[s]] 1 to 3, characterized in that wherein the electromagnetic radiation has a wavelength in the range from 1 to 50 μm .
5. (currently amended) The [[M]]method according to any of [[C]]claim[[s]] 1 to 4, characterized in that wherein the pressure acting on the polymer is in a range from 1 N/mm² to 5000 N/mm².
6. (currently amended) The [[M]]method according to any of [[C]]claim[[s]] 1 to 5, characterized in that wherein the shearing is applied with a force or a torque such that a shear rate in the range from 10° to 10⁶ s⁻¹ acts on the polymer.
7. (currently amended) The [[M]]method according to any of [[C]]claim[[s]] 1 to 6, characterized in that wherein the polymer

comprises a polymer which can form intermolecular hydrogen bridge bonds.

8. (currently amended) The [[M]]method according to [[C]]claim 7, characterized in that wherein the polymer which can form intermolecular hydrogen bridge bonds is a polysaccharide or polyvinyl alcohol.
9. (currently amended) The [[M]]method according to [[C]]claim 8, characterized in that wherein the polymer which can form intermolecular hydrogen bridge bonds is selected from the group consisting of cellulose, chitin, polyvinyl alcohol, a constitutional isomer of cellulose, a constitutional isomer of chitin [or]] and a blend of one or more of the above polymers.
10. (currently amended) The [[M]]method according to [[C]]claim 9, characterized in that wherein the polymer which can form intermolecular hydrogen bridge bonds is cellulose.
11. (currently amended) The [[M]]method according to any of [[C]]claim[[s]] 1 to 10, characterized in that wherein the polymer is melted by means of electromagnetic radiation having a wavelength in the range from 0.8 to 100 μm under the simultaneous action of pressure and shearing and thermal energy and is then extruded in a manner known per se to give films, spun to give fibres or processed by injection moulding to give a moulding.
12. (currently amended) An [[A]]apparatus for carrying out the method according to any of Claims 1 to 11, characterized in that it comprises comprising a means for holding a polymer, a means for exerting

pressure on the polymer, a means for shearing the polymer, a means for supplying or removing heat and a means for irradiating the polymer with electromagnetic radiation having a wavelength of from 0.8 to 100 μm .

13. (currently amended) An [[A]]apparatus according to [[C]]~~claim 12, characterized in that wherein~~ the means for irradiating the polymer with electromagnetic radiation having a wavelength of from 0.8 to 100 μm is a laser.
14. (currently amended) An [[A]]apparatus according to [[C]]~~claim 12 or 13, characterized in that wherein~~ the means for shearing the polymer comprises two ram surfaces movable relative to one another.
15. (currently amended) An [[A]]apparatus according to [[C]]~~claim[[s]] 12 to 14, characterized in that wherein~~ the means for exerting pressure on the polymer are also simultaneously the means by which the polymer is sheared.
16. (currently amended) A [[P]]polymer comprising cellulose or chitin, obtainable by the method according to any of [[C]]~~claim[[s]] 1 to 11.~~
17. (currently amended) The [[P]]polymer according to [[C]]~~claim 16, characterized in that it which is present as a film, fibre or moulding.~~